

Claims

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[c1]

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1. An arrangement for a vehicle steering-wheel, said arrangement comprising:

a hub for fixing to a steering column;

a bowl-shaped element connected to the hub with at least one spoke which connects the bowl-shaped element to a steering-wheel rim; the hub, the bowl-shaped element and the at least one spoke being integrally formed as a single material item;

the bowl-shaped element constitutes a casing which encloses an airbag and a means for inflating the airbag in the event of a collision involving the vehicle; and

a wall section of the bowl-shaped element forming, at least partly, a part of the means for inflating the airbag.

[c2]

2. The arrangement according to claim 1, wherein the airbag is arranged so that a major part of its mass extends along an inner periphery of the bowl-shaped element.

[c3]

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3. The arrangement according to claim 2, wherein the arrangement is formed with a weight distribution and dimensioning of the steering-wheel, airbag and the means for inflating the airbag which correspond to a moment of inertia for the steering-wheel which lies within a predetermined range.

[c4]

4. The arrangement according to claim 2, wherein the arrangement is formed with a weight distribution and dimensioning of the steering-wheel, airbag and means for inflating the airbag which correspond to a torsion natural frequency f_B and a bending natural frequency f_B which are set in order to minimize mechanical perturbations in the steering-wheel.

[c5]

5. The arrangement according to claim 1, wherein the bowl-shaped element is essentially conical and comprises a lower shell part and an upper shell part, the upper shell part having larger outer dimensions than the lower shell part and the shell parts being connected by a ledge extending essentially in the radial direction relative to the longitudinal axis of the steering column.

- [c6] 6.The arrangement according to claim 1 , wherein the arrangement includes at least two spokes which are connected by a reinforcing element which constitutes an extension of, and is an integrated part of, the bowl-shaped element.
- [c7] 7.The arrangement according to claim 1 , wherein the arrangement includes a steering-wheel rim which is integrally formed with the at least one spoke.
- [c8] 8.The arrangement according to claim 1 , wherein the arrangement is formed as an integrated unit by casting.
- [c9] 9.A vehicle steering-wheel arrangement, said arrangement comprising:
a hub configured for fixation to a steering column positioned in a vehicle;
a bowl-shaped element connected to the hub, the bowl-shaped element having at least one spoke for connecting the bowl-shaped element to a steering-wheel rim;
the bowl-shaped element establishing a casing that at least partially surrounds an airbag and an inflating mechanism that inflates the airbag in the event of a collision involving the vehicle; and
a wall section of the bowl-shaped element forming, at least partly, a part of the inflating mechanism for the airbag.
- [c10] 10.The arrangement according to claim 9 , wherein the at least one spoke comprises a plurality of spokes, each of said spokes being interconnected with the hub and the bowl-shaped element.
- [c11] 11.The arrangement according to claim 10 , wherein the hub, the bowl-shaped element and the plurality of spokes are integrally formed with a steering-wheel rim.
- [c12] 12.The arrangement according to claim 9 , further comprising:
the airbag being arranged with a majority of its mass being located along an inner periphery of the bowl-shaped element.

[c13]

13.The arrangement according to claim 9 , further comprising:

the arrangement being configured so that the steering-wheel, the airbag and the inflating mechanism for the airbag have a weight distribution and dimensioning that correspond to a moment of inertia for the steering-wheel which lies within a predetermined range.

[c14] 14.The arrangement according to claim 9 , further comprising:
the arrangement being configured so that the steering-wheel, the airbag and the inflating mechanism for the airbag have a weight distribution and dimensioning that correspond to a moment of inertia for the steering-wheel which corresponds to a torsion natural frequency f_B and a bending natural frequency f_B which are set in order to minimize mechanical perturbations in the steering-wheel.

[c15] 15.The arrangement according to claim 9 , further comprising:
the bowl-shaped element is substantially conically-shaped and comprises a lower shell portion and an upper shell portion.

[c16] 16.The arrangement according to claim 15 , further comprising:
the upper shell portion has a larger outer dimension than the lower shell portion and the shell portions are connected by a ledge extending in a substantially radial direction relative to a longitudinal axis of the steering column.

[c17] 17.The arrangement according to claim 9 , wherein the at least one spoke further comprises at least two spokes, each of the two spokes are connected by a reinforcing element that constitutes an extension of, and is an integrated part of the bowl-shaped element.

[c18] 18.The arrangement according to claim 9 , wherein the arrangement includes a steering-wheel rim that is integrally formed with the at least one spoke.

[c19] 19.The arrangement according to claim 18 , wherein the arrangement is cast-formed as an integrated unit.

[c20]

20.A vehicle steering-wheel arrangement, said arrangement comprising:
a hub connectable to a steering column of a vehicle;
a bowl-shaped element integrally formed with the hub, the bowl-shaped element having at least one spoke for connecting the bowl-shaped element to a steering-wheel rim;
the bowl-shaped element configured to establish a casing that partially surrounds an airbag associated with the arrangement and an inflating mechanism that inflates the airbag in the event of a collision involving the vehicle; and
a wall section of the bowl-shaped element forming a portion of the inflating mechanism.

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